

Title (en)
METHOD FOR PRODUCING A HIGH STRENGTH STEEL SHEET HAVING IMPROVED STRENGTH AND FORMABILITY AND OBTAINED SHEET

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES HOCHFESTEN STAHLBLECHS MIT VERBESSERTER FESTIGKEIT UND UMFORMBARKEIT UND DAS HERGESTELLTE BLECH

Title (fr)
PROCÉDÉ DE PRODUCTION D'UNE TÔLE D'ACIER À HAUTE RÉSISTANCE PRÉSENTANT RÉSISTANCE ET FORMABILITÉ AMÉLIORÉES ET TÔLE OBTENUE

Publication
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Application
EP 15750810 A 20150703

Priority
• IB 2014002296 W 20140703
• IB 2015055037 W 20150703

Abstract (en)
[origin: WO2016001706A1] A method for producing a high strength steel sheet having a yield strength $YS \geq 850$ MPa, a tensile strength $TS \geq 1180$ MPa, a total elongation ≥ 13 % and a hole expansion ratio $HER > 30\%$, by heat treating a steel sheet wherein the chemical composition of the steel contains: $0.13\% \leq C \leq 0.22\%$, $1.2\% \leq Si \leq 1.8\%$, $1.8\% \leq Mn \leq 2.2\%$, $0.10\% \leq Mo \leq 0.20\%$, $Nb \leq 0.05$ %, $Ti \leq 0.05$ %, $Al \leq 0.5\%$, the remainder being Fe and unavoidable impurities. The sheet is annealed at an annealing temperature $TA \geq 865$ °C and ≤ 1000 °C for a time of more than 30 s then quenched by cooling it to a quenching temperature QT between $275^{\circ}C$ and $375^{\circ}C$, a cooling speed ≥ 30 °C/s in order to have, just after quenching, a structure consisting of austenite and at least 50% of martensite, the austenite content being such that the final structure can contain between 3% and 15% of residual austenite and between 85 % and 97% of the sum of martensite and bainite without ferrite, then heated to a partitioning temperature PT between 370 °C and $470^{\circ}C$ and maintained at this temperature for a time Pt between 50 s and 150 s, then cooled to the room temperature. Obtained sheet.

IPC 8 full level
C21D 1/19 (2006.01); **C21D 6/00** (2006.01); **C21D 8/04** (2006.01); **C21D 9/48** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01)

CPC (source: CN EP KR RU US)
C21D 1/18 (2013.01 - US); **C21D 1/19** (2013.01 - EP US); **C21D 1/20** (2013.01 - CN KR); **C21D 6/005** (2013.01 - US); **C21D 6/008** (2013.01 - US); **C21D 8/0226** (2013.01 - CN); **C21D 8/0236** (2013.01 - CN); **C21D 8/0242** (2013.01 - RU); **C21D 8/0247** (2013.01 - CN KR); **C21D 8/0447** (2013.01 - EP US); **C21D 9/46** (2013.01 - CN KR RU US); **C21D 9/48** (2013.01 - EP US); **C22C 38/02** (2013.01 - CN EP KR RU US); **C22C 38/04** (2013.01 - CN EP KR RU US); **C22C 38/06** (2013.01 - CN EP KR RU US); **C22C 38/12** (2013.01 - CN EP KR RU US); **C22C 38/14** (2013.01 - CN EP KR RU US); **C21D 8/0426** (2013.01 - EP US); **C21D 8/0436** (2013.01 - EP US); **C21D 2211/001** (2013.01 - CN EP KR US); **C21D 2211/002** (2013.01 - CN EP KR US); **C21D 2211/008** (2013.01 - CN EP KR US)

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